

Notice of Allowability

Application No.

09/623,440

Examiner

James S. Wozniak

Applicant(s)

TAKAGI ET AL.

Art Unit

2655

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 6/20/2005.
2. ☒ The allowed claim(s) is/are 1-8 and 10-12 (now 1-11).
3. ☒ The drawings filed on 05 September 2000 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


W. R. YOUNG
PRIMARY EXAMINER

DETAILED ACTION

Response to Amendment

1. In response to the office action from 3/21/2005, the applicant has submitted an amendment, filed 6/20/2005, amending claims 1, 11, and 12, while arguing to traverse the art rejection based on the limitation regarding the calculation of a transition probability based on a positive or negative stimulus (*Amendment, Pages 7-8*). Applicant's arguments have been fully considered and claims 1-8 and 10-12 are allowable over the prior art of record for the below listed reasons.

Allowable Subject Matter

2. **Claims 1-8 and 10-12** are allowable over the prior art of record.

3. The following is an examiner's statement of reasons for allowance:

With respect to **Claims 1, 11, and 12**, the prior art of record fails to explicitly teach or fairly suggest a system, method, and computer program stored on a computer readable medium for enabling future behavior learning in an interactive pet robot device, wherein a behavior is performed by the device and a user responds with a stimulus via speech or touch to determine if a transition probability arc to a particular behavior state in a probability automation is to be modified according to the claimed improvement ratio equation if a behavior is positively

reinforced by a stimuli or the claimed lowering ratio equation if a behavior is negatively enforced by a stimuli. The user stimuli are judged as being positive or negative by analyzing the pressure of a tactile input and the emotion of a speech input through prosody. Thus, claimed invention enables an interactive pet robot device to achieve machine learning by increasing the transitional probability to a behavior state in a probability automaton using the claimed improvement ratio equation in response to a positive voice or touch input and lowering the transitional probability to a behavior state in a probability automation using the claimed lowering ratio equation in response to a negative voice or touch input.

Kamiya et al (*U.S. Patent: 6,175,772*) teaches an interactive robot device that accepts a user voice or touch input for an analyzing a user's emotional response to a robot behavior for affecting robot learning (*Col. 4, Lines 6-14; and Col. 10, Lines 46-62*). Kamiya, however, utilizes a neural network in establishing robot behavior evolution (*Col. 7, Lines 33-46*) and does not disclose probability algorithms for behavior modification.

Lund et al ("Adaptive LEGO Robots: A Robot-Human View on Robotics") teaches an interactive robot that learns behavior based upon user speech input analysis and utilizes probability in determining robot behavior (Page 1021, Behavior Set Selector), but does not teach separate probability algorithms for behavior modification.

Taylor et al (*U.S. Patent: 5,175,798*) teaches a training probability equation featuring a punishment to reward ratio (*Col. 3, Line 42, Col. 4, Line 42*), but relies on a single equation to calculate behavior reinforcement different from the transitional probability of the presently claimed invention and does not teach the use of tactile or speech recognition.

Thus, Claims 1, 11, and 12 are allowable over the prior art of record.

The dependent claims (2- 8 and 10) further limit allowed independent claims, and thus, are also allowable over the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

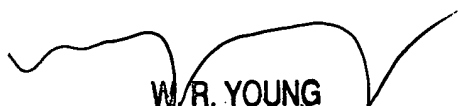
Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James S. Wozniak whose telephone number is (571) 272-7632. The examiner can normally be reached on M-Th, 7:30-5:00, F, 7:30-4, Off Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on (571) 272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James S. Wozniak
8/29/2005


W.R. YOUNG
PRIMARY EXAMINER